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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,430	04/18/2001	Motoo Koyama	1539.1008	6838

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EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 05/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant No.

09/836,430

Applicant(s)

KOYAMA ET AL.

Examiner

Henry Hung V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 13 objected to because of the following informalities: reference to "characteristic" on line 9, should read --characteristic--. Appropriate correction is required.

Abstract

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because:

- a. The term such as "comprises" in line 5 should be omitted:
- b. All reference characters should be in parenthesis.

Correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification lacks adequate support for the claimed provision of " $0.05 \leq \Delta\lambda/\lambda$," as specified in claim 8.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed recitation of "wherein the following relation is satisfied... of said predetermined wavelength band" is conflicting with the specification (see page 5, lines 1-8) and not clearly understood.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-4, 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Tei et al (U.S.Pat. 6,292,616).

With regard to claims 1-4, Tei et al (fig.2c) discloses an optical apparatus (10) comprising all of the structures as set forth in the instant claims including an antireflection coating (12a) having wavelength dependence formed on one surface and a second antireflection coating (12b) as a suppressor which is formed on the other side of the optical apparatus for correcting/canceling the wavelength dependence in a predetermined wavelength band.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tei et al (U.S.Pat. 6,292,616).

With regard to claims 5-8, Tei et al discloses an optical apparatus comprising substantially all basic features of the instant claims as discussed. Tei et al does not expressly

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disclose the suppressor/antireflection film having a reflectance characteristic to increase the reflectance on the short wavelength side and decrease the reflectance on the long wavelength side with variation in incidence of rays from normal incidence to oblique incidence or having a first region in which the first derivative of the wavelength characteristic is positive, on the short wavelength side and a region in which the second derivative of the wavelength characteristic is negative, in a second region on the longer wavelength side of the first region or the optical apparatus which satisfies the condition as specified in claim 8. However, Tei suggests that "in the conventional optical attenuator, as the wavelength changes to the longer wavelength side, the transmissivity rises gradually.... Other antireflection coating 12b is a coating having a reverse characteristics of this characteristic so as to cancel the wavelength dependence" (see col.4, lines 10-18) and further teaches "by varying the number of layers or the optical thickness, the wavelength dependence of the central wavelength or reflectivity may be changed"....depending on the operating wavelength range" or "Herein, the antireflection coating 12b is a coating of four layers, and its central wavelength is a shorter wavelength than the operating wavelength" or "transmissivity is lower at 1600nm than at 1500nm" (see col.4, lines 40-52). This provides a concrete evidence that it would have been obvious and would be within a level of ordinary skill in the art to set the reflectance characteristic of the antireflection as specified in the above claims for the purpose of suppressing the wavelength dependence.

12. Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (U.S.Pat. 6,051,842).

With respect to claims 9-20, Yamamoto discloses an exposure apparatus comprising substantially all basic features of the instant claims such as: a light source (111) including three

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bright lines of g-line, h-line and i-line; an illumination optical system placed between the light source and the mask (see fig.1) and a projection optical system (130) for transferring a pattern formed on the mask onto the substrate (W1). Yamamoto lacks to show an optical element comprising a thin film and a suppressor for correcting the wavelength dependence. As discussed above, Tei et al teaches an optical attenuator having an antireflection coating (12a) having wavelength dependence formed on one surface and a second antireflection coating (12b) as a suppressor which is formed on the other side of the optical apparatus for correcting/canceling the wavelength dependence in a predetermined wavelength band. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the optical element as taught by Tei into the exposure device of Yamamoto for the purpose of suppressing the wavelength dependence and thus improving the quality of the exposure apparatus.

Prior Art Made of Record

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hagiwara (U.S.Pat. 5,381,210) teaches an exposing apparatus having antireflection coating formed each lens elements of the projection optical system.

Tokuhiro et al (U.S.Pat. 5,920,431) teaches optical member having antireflection film.

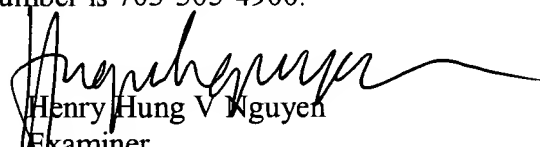
Yoshida (U.S.Pat. 6,285,424) teaches mask having first and second antireflection films formed thereon for suppressing wavelength dependence.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Hung V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7723 for regular communications and 703-305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.


Henry Hung V Nguyen
Examiner
Art Unit 2851

hvn
May 17, 2002